FORM APPROVED
OMB No. 158–R0100

FOR AGENCY USE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER

STANDARD FORM C – MANUFACTURING AND COMMERCIAL

SECTION I. APPLICANT AND FACILITY DESCRIPTION

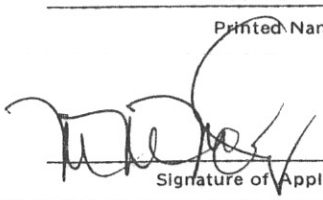
Unless otherwise specified on this form all items are to be completed. If an item is not applicable indicate 'NA.'

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

Please Print or Type

1. **Legal Name of Applicant** (see instructions)	101	Cyprus Mines Corporation
2. **Mailing Address of Applicant** (see instructions) Number & Street	102a	555 South Flower Street
City	102b	Los Angeles
State	102c	California
Zip Code	102d	90071
3. **Applicant's Authorized Agent** (see instructions) Name and Title	103a	M.M. McGee General Manager
Number & Street Address	103b	P.O. Box 755
City	103c	Challis
State	103d	Idaho
Zip Code	103e	83226
Telephone	103f	208 (Area Code) 879-4299 (Number)
4. **Previous Application** If a previous application for a National or Federal discharge permit has been made, give the date of application. Use numeric designation for date.	104	'NA' (YR MO DAY)

I certify that I am familiar with the information contained in this application and that to the best of my knowledge and belief such information is true, complete, and accurate.

M.M. McGee Printed Name of Person Signing	102e	General Manager Title
 Signature of Applicant or Authorized Agent	102f	80 4 14 (YR MO DAY) 4/14/80 Date Application Signed

18 U.S.C. Section 1001 provides that:

Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and wilfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statement or representation, or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.

FOR AGENCY USE

Received ___ ___ ___ (YR MO DAY)

OFFICE: ____EPA Region Number
____State

FOR AGENCY USE

5. **Facility/Activity** (see instructions) Give the name, ownership, and physical location of the plant or other operating facility where discharge(s) does or will occur.

Name	105a	Cyprus Thompson Creek Cyprus Mines Corporation Custer County, Idaho
Ownership (Public, Private or Both Public and Private)	105b	☐ PUB ☐ PRV ☒ BPP
Check block if Federal Facility and give GSA Inventory Control Number	105c	☐ FED
	105d	'NA'
Location Street & Number	105e	'NA'
City	105f	'NA'
County	105g	Custer
State	105h	Idaho

6. **Nature of Business** State the nature of the business conducted at the plant or operating facility.

	106a	Molybdenum Mining
	106b	AGENCY USE

7. **Facility Intake Water** (see instructions) Indicate water intake volume per day by sources. Estimate average volume per day in thousand gallons per day.

Municipal or private water system	107a	'NA' thousand gallons per day
Surface water	107b	11,890.0 thousand gallons per day
Groundwater	107c	500.0 thousand gallons per day
Other*	107d	'NA' thousand gallons per day
Total Item 7	107e	12,390.0 thousand gallons per day
*If there is intake water from 'other,' specify the source.	107f	

8. **Facility Water Use** Estimate average volume per day in thousand gallons per day for the following types of water usage at the facility. (see instructions)

Noncontact cooling water	108a	'NA' thousand gallons per day
Boiler feed water	108b	'NA' thousand gallons per day
Process water (including contact cooling water)	108c	12,240.0 thousand gallons per day
Sanitary water	108d	30.0 thousand gallons per day
Other*	108e	120.0 thousand gallons per day
Total Item 8	108f	12,390.0 thousand gallons per day
*If there are discharges to 'other,' specify.	108g	Miscellaneous uses for dust control, drinking supply, fire fighting and general utility uses.
If there is 'Sanitary' water use, give the number of people served.	108h	550 people served

FORM APPROVED
OMB No. 158--R0100

FOR AGENCY USE

9. **All Facility Discharges and other Losses; Number and Discharge (see instructions) Volume** Specify the number of discharge points and the volume of water discharged or lost from the facility according to the categories below. Estimate average volume per day in thousand gallons per day.

		Number of Discharge Points		Total Volume Used or Discharged, Thousand Gal/Day	
Surface Water	109a1	3	109a2	865.0	
Sanitary wastewater transport system	109b1	'NA'	109b2	'NA'	
Storm water transport system	109c1	'NA'	109c2	'NA'	
Combined sanitary and storm water transport system	109d1	'NA'	109d2	'NA'	
Surface impoundment with no effluent	109e1	(1)	109e2	(11,890.0)	see narrative, section 2.5.
Underground percolation	109f1	'NA'	109f2	'NA'	
Well Injection	109g1	'NA'	109g2	'NA'	
Waste acceptance firm	109h1	'NA'	109h2	'NA'	
Evaporation	109i1	(1)	109i2	(125.0)	see narrative, section 2.5.
Consumption	109j1	'NA'	109j2	'NA'	
Other*	109k1	'NA'	109k2	'NA'	
Facility discharges and volume Total Item 9.	109l1	3	109l2	865.0	
*If there are discharges to 'other,' specify.	109m1	'NA'			

10. **Permits, Licenses and Applications**
List all existing, pending or denied permits, licenses and applications related to discharges from this facility (see instructions).

110	Issuing Agency (a)	For Agency Use (b)	Type of Permit or License (c)	ID Number (d)	Date Filed YR/MO/DA (e)	Date Issued YR/MO/DA (f)	Date Denied YR/MO/DA (g)	Expiration Date YR/MO/DA (h)
1.	US,Forest		Operating		3-5-79	3-79		continuing
	Service		Plan					
2.	IDH&W		Dam	none	to be	'NA'	'NA'	'NA'
			Safety		filed			
3.	IDL		Surface	none	to be	'NA'	'NA'	'NA'
			Mining		filed			

11. **Maps and Drawings**
Attach all required maps and drawings to the back of this application.(see instructions)

12. **Additional Information**

112 Item Number	Information
7&9	A net difference between items 7 and 9 (11,525.0 thousand gallons per day) occurs due to the design of the facility. The facility is a closed circuit system wherein the tailings water is continually being recycled. (section 1.5 of the narrative) See attached narrative.

FORM APPROVED
OMB No. 158–R0100

STANDARD FORM C – MANUFACTURING AND COMMERCIAL

FOR AGENCY USE

SECTION II. BASIC DISCHARGE DESCRIPTION

Complete this section for **each** discharge indicated in Section I, Item 9, that is to surface waters. This includes discharges to municipal sewerage systems in which the wastewater does not go through a treatment works prior to being discharged to surface waters. Discharges to wells must be described where there are also discharges to surface waters from this facility. **SEPARATE DESCRIPTIONS OF EACH DISCHARGE ARE REQUIRED EVEN IF SEVERAL DISCHARGES ORIGINATE IN THE SAME FACILITY.** All values for an existing discharge should be representative of the twelve previous months of operation. If this is a proposed discharge, values should reflect best engineering estimates.

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

1. **Discharge Serial No. and Name**

a. **Discharge Serial No.** (see instructions)	201a	001
b. **Discharge Name** Give name of discharge, if any. (see instructions)	201b	Sedimentation Pond
c. **Previous Discharge Serial No.** If previous permit application was made for this discharge (see Item 4, Section I), provide previous discharge serial number.	201c	none

2. **Discharge Operating Dates**

a. **Discharge Began Date** If the discharge described below is in operation, give the date (within best estimate) the discharge began.	202a	'NA' (YR MO)
b. **Discharge to Begin Date** If the discharge has never occurred but is planned for some future date, give the date (within best estimate) the discharge will begin.	202b	80 12 (YR MO)
c. **Discharge to End Date** If discharge is scheduled to be discontinued within the next 5 years, give the date (within best estimate) the discharge will end.	202c	'NA' (YR MO)

3. **Engineering Report Available** Check if an engineering report is available to reviewing agency upon request. (see instructions) — 203 — ☒

4. **Discharge Location** Name the political boundaries within which the point of discharge is located.

				Agency Use
State	204a	Idaho	204d	
County	204b	Custer County	204e	
(if applicable) City or Town	204c	'NA'	204f	

5. **Discharge Point Description** Discharge is into (check one): (see instructions)

Stream (includes ditches, arroyos, and other intermittent watercourses)	205a	☒ STR
Lake		☐ LKE
Ocean		☐ OCE
Municipal Sanitary Wastewater Transport System		☐ MTS
Municipal Combined Sanitary and Storm Transport System		☐ MCS

DISCHARGE SERIAL NUMBER

FOR AGENCY USE

Municipal Storm Water Transport System ☐ STS

Well (Injection) ☐ WEL

Other ☐ OTH

If 'other' is checked, specify 205b

6. **Discharge Point — Lat/Long** Give the precise location of the point of discharge to the nearest second.

Latitude 206a 44 DEG 18 MIN 38 SEC

Longitude 206b 114 DEG 34 MIN 30 SEC

7. **Discharge Receiving Water Name** Name the waterway at the point of discharge.(see instructions) 207a Buckskin Creek

If the discharge is through an outfall that extends beyond the shoreline or is below the mean low water line, complete Item 8.

207b

For Agency Use		
Major	Minor	Sub

207c

For Agency Use
303e

8. **Offshore Discharge**

a. **Discharge Distance from Shore** 208a 'NA' feet

b. **Discharge Depth Below Water Surface** 208b 'NA' feet

9. **Discharge Type and Occurrence**

a. **Type of Discharge** Check whether the discharge is continuous or intermittent. (see instructions) 209a ☒ (con) Continuous ☐ (int) Intermittent

b. **Discharge Occurrence Days per Week** Enter the average number of days per week (during periods of discharge) this discharge occurs. 209b 7 days per week

c. **Discharge Occurrence** —Months If this discharge normally operates (either intermittently, or continuously) on less than a year-around basis (excluding shutdowns for routine maintenance), check the months during the year when the discharge is operating. (see instructions) 209c ☐ JAN ☐ FEB ☐ MAR ☐ APR ☐ MAY ☐ JUN ☐ JUL ☐ AUG 'NA' ☐ SEP ☐ OCT ☐ NOV ☐ DEC

Complete Items 10 and 11 if "intermittent" is checked in Item 9.a. Otherwise, proceed to Item 12.

10. **Intermittent Discharge Quantity** State the average volume per discharge occurrence in thousands of gallons. 210 'NA' thousand gallons per discharge occurrence.

11. **Intermittent Discharge Duration and Frequency**

a. **Intermittent Discharge Duration Per Day** State the average number of hours per day the discharge is operating. 211a 'NA' hours per day

b. **Intermittent Discharge Frequency** State the average number of discharge occurrences per day during days when discharging. 211b 'NA' discharge occurrences per day

12. **Maximum Flow Period** Give the time period in which the maximum flow of this discharge occurs. 212 From Apr. (month) to June (month)

DISCHARGE SERIAL NUMBER

FORM APPROVED
OMB No. 158--R0100

FOR AGENCY USE

13. **Activity Description** Give a narrative description of activity producing this discharge.(see instructions)

213a See Attached Narrative- section 2.2.1.

14. **Activity Causing Discharge** For each SIC Code which describes the activity causing this discharge, supply the type and maximum amount of either the raw material consumed (Item 14a) or the product produced (Item 14b) in the units specified in Table I of the Instruction Booklet. For SIC Codes not listed in Table I, use raw material or production units normally used for measuring production.(see instructions)

a. **Raw Materials**

	SIC Code	Name	Maximum Amount/Day	Unit (See Table I)	Shared Discharges (Serial Number)
214a	(1)	(2)	(3)	(4)	(5)
	1061	Non-metallic minerals; ~~ferro-alloy~~ ores.	100,000	tons	none

b. **Products**

	SIC Code	Name	Maximum Amount/Day	Unit (See Table I)	Shared Discharges (Serial Number)
214b	(1)	(2)	(3)	(4)	(5)
	1061	Non-metallic minerals; ~~ferro-alloy~~ ores.	25,000	tons	none

DISCHARGE SERIAL NUMBER

FOR AGENCY USE

15. Waste Abatement

a. **Waste Abatement Practices** Describe the waste abatement practices used on this discharge with a brief narrative. (see instructions)

215a

Narrative: See Attached Narrative- sections 1.5 and 2.5.

b. **Waste Abatement Codes** Using the codes listed in Table II of the Instruction Booklet, describe the waste abatement processes for this discharge in the order in which they occur if possible.

215b

(1) 'NA', (2) _____, (3) _____,
(4) _____, (5) _____, (6) _____,
(7) _____, (8) _____, (9) _____,
(10) _____, (11) _____, (12) _____,
(13) _____, (14) _____, (15) _____,
(16) _____, (17) _____, (18) _____,
(19) _____, (20) _____, (21) _____,
(22) _____, (23) _____, (24) _____,
(25) _____.

DISCHARGE SERIAL NUMBER

FORM APPROVED
OMB No. 158–R0100

FOR AGENCY USE

16. Wastewater Characteristics

Check the box beside each constituent which is present in the effluent (discharge water). This determination is to be based on actual analysis or best estimate.(see instructions)

Parameter 216	Present	Parameter 216	Present
Color 00080		Copper 01042	XX
Ammonia 00610		Iron 01045	XX
Organic nitrogen 00605		Lead 01051	XX
Nitrate 00620		Magnesium 00927	
Nitrite 00615		Manganese 01055	XX
Phosphorus 00665		Mercury 71900	
Sulfate 00945	XX	Molybdenum 01062	XX
Sulfide 00745	XX	Nickel 01067	
Sulfite 00740		Selenium 01147	
Bromide 71870		Silver 01077	
Chloride 00940	XX	Potassium 00937	
Cyanide 00720		Sodium 00929	XX
Fluoride 00951		Thallium 01059	
Aluminum 01105		Titanium 01152	
Antimony 01097		Tin 01102	
Arsenic 01002		Zinc 01092	XX
Beryllium 01012		Algicides* 74051	
Barium 01007		Chlorinated organic compounds* 74052	
Boron 01022		Pesticides* 74053	
Cadmium 01027		Oil and grease 00550	
Calcium 00916		Phenols 32730	
Cobalt 01037		Surfactants 38260	
Chromium 01034		Chlorine 50060	
Fecal coliform bacteria 74055		Radioactivity* 74050	

*Specify substances, compounds and/or elements in Item 26.

Pesticides (insecticides, fungicides, and rodenticides) must be reported in terms of the acceptable common names specified in *Acceptable Common Names and Chemical Names for the Ingredient Statement on Pesticide Labels,* 2nd Edition, Environmental Protection Agency, Washington, D.C. 20250, June 1972, as required by Subsection 162.7(b) of the Regulations for the Enforcement of the Federal Insecticide, Fungicide, and Rodenticide Act.

DISCHARGE SERIAL NUMBER

FOR AGENCY USE

17. **Description of Intake and Discharge**

For each of the parameters listed below, enter in the appropriate box the value or code letter answer called for.(see instructions)

In addition, enter the parameter name and code and all required values for any of the following parameters if they were checked in Item 16; ammonia, cyanide, aluminum, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc, phenols, oil and grease, and chlorine (residual).

Parameter and Code 217a	Influent		Effluent					
	Untreated Intake Water (Daily Average) (1)	In-Plant Treated Intake Water (Daily Average) (2)	Daily Average (3)	Minimum Value Observed or Expected During Discharge Activity (4)	Maximum Value Observed or Expected During Discharge Activity (5)	Frequency of Analysis (6)	Number of Analyses (7)	Sample Type (8)
Flow* Gallons per day 00056	864,000		864,000	864,000	2,160,000			
pH Units 00400	6.0-9.0		X	6.0	9.0	daily		
Temperature (winter) ° F 74028	9.8°C			9.8°C	10.8°C	weekly		
Temperature (summer) ° F 74027	9.8°C-16.0°C			9.8°C	16.0°C	weekly		
Biochemical Oxygen Demand (BOD 5-day) mg/l 00310	none	none				monthly		
Chemical Oxygen Demand (COD) mg/l 00340	none					monthly		
Total Suspended (nonfilterable) Solids mg/l 00530	0-500 mg/l					monthly		
Specific Conductance micromhos/cm at 25° C 00095	115-600		X	115	600	monthly		
Settleable Matter (residue) ml/l 00545	0-500 mg/l							

*Other discharges sharing intake flow (serial numbers).(see instructions)

17. (Cont'd.)

Parameter and Code 217a	Influent		Effluent					
	Untreated Intake Water (Daily Average) (1)	In-Plant Treated Intake Water (Daily Average) (2)	Daily Average (3)	Minimum Value Observed or Expected During Discharge Activity (4)	Maximum Value Observed or Expected During Discharge Activity (5)	Frequency of Analysis (6)	Number of Analyses (7)	Sample Type (8)
See attached								
analyses of								
ground water								
included in								
Tables II and								
III of the								
narrative.								

18. **Plant Controls** Check if the following plant controls are available for this discharge. 218

Alternate power source for major pumping facility. ☒ APS

Alarm or emergency procedure for power or equipment failure ☒ ALM

Complete item 19 if discharge is from cooling and/or steam water generation and water treatment additives are used.

19. **Water Treatment Additives** If the discharge is treated with any conditioner, inhibitor, or algicide, answer the following:

a. Name of Material(s) 219a 'NA'

b. Name and address of manufacturer 219b 'NA'

c. Quantity (pounds added per million gallons of water treated). 219c 'NA'

d. Chemical composition of these additives (see instructions). 219d 'NA'

Complete items 20-25 if there is a thermal discharge (e.g., associated with a steam and/or power generation plant, steel mill, petroleum refinery, or any other manufacturing process) and the total discharge flow is 10 million gallons per day or more. (see instructions)

20. Thermal Discharge Source Check the appropriate item(s) indicating the source of the discharge. (see instructions) 220

Boiler Blowdown	☐ BLBD
Boiler Chemical Cleaning	☐ BCCL
Ash Pond Overflow	☐ APOF
Boiler Water Treatment — Evaporator Blowdown	☐ EPBD
Oil or Coal Fired Plants — Effluent from Air Pollution Control Devices	☐ OCFP 'NA'
Condense Cooling Water	☐ COND
Cooling Tower Blowdown	☐ CTBD
Manufacturing Process	☐ MFPR
Other	☐ OTHR

21. Discharge/Receiving Water Temperature Difference

Give the maximum temperature difference between the discharge and receiving waters for summer and winter operating conditions. (see instructions)

Summer 221a 'NA' °F.

Winter 221b 'NA' °F.

22. Discharge Temperature, Rate of Change Per Hour 222 'NA' °F./hour

Give the maximum possible rate of temperature change per hour of discharge under operating conditions. (see instructions)

23. Water Temperature, Percentile Report (Frequency of Occurrence)

In the table below, enter the temperature which is exceeded 10% of the year, 5% of the year, 1% of the year and not at all (maximum yearly temperature). (see instructions)

'NA'

Frequency of occurrence	10%	5%	1%	Maximum
a. Intake Water Temperature (Subject to natural changes) 223a	°F	°F	°F	°F
b. Discharge Water Temperature 223b	°F	°F	°F	°F

24. Water Intake Velocity (see instructions) 224 'NA' feet/sec.

25. Retention Time Give the length of time, in minutes, from start of water temperature rise to discharge of cooling water. (see instructions) 225 'NA' minutes

DISCHARGE SERIAL NUMBER

FOR AGENCY USE

26. Additional Information

226

Item	Information
	See Attached Narrative and Drawings.

FORM APPROVED
OMB No. 158–R0100

STANDARD FORM C – MANUFACTURING AND COMMERCIAL

FOR AGENCY USE

SECTION II. BASIC DISCHARGE DESCRIPTION

Complete this section for **each** discharge indicated in Section I, Item 9, that is to surface waters. This includes discharges to municipal sewerage systems in which the wastewater does not go through a treatment works prior to being discharged to surface waters. Discharges to wells must be described where there are also discharges to surface waters from this facility. **SEPARATE DESCRIPTIONS OF EACH DISCHARGE ARE REQUIRED EVEN IF SEVERAL DISCHARGES ORIGINATE IN THE SAME FACILITY.** All values for an existing discharge should be representative of the twelve previous months of operation. If this is a proposed discharge, values should reflect best engineering estimates.

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

1. Discharge Serial No. and Name		
a. **Discharge Serial No.** (see instructions)	201a	002
b. **Discharge Name** Give name of discharge, if any. (see instructions)	201b	Sedimentation Pond
c. **Previous Discharge Serial No.** If previous permit application was made for this discharge (see Item 4, Section I), provide previous discharge serial number.	201c	none
2. Discharge Operating Dates		
a. **Discharge Began Date** If the discharge described below is in operation, give the date (within best estimate) the discharge began.	202a	'NA' (YR MO)
b. **Discharge to Begin Date** If the discharge has never occurred but is planned for some future date, give the date (within best estimate) the discharge will begin.	202b	80 12 (YR MO)
c. **Discharge to End Date** If discharge is scheduled to be discontinued within the next 5 years, give the date (within best estimate) the discharge will end.	202c	'NA' (YR MO)
3. Engineering Report Available Check if an engineering report is available to reviewing agency upon request. (see instructions)	203	☒
4. Discharge Location Name the political boundaries within which the point of discharge is located.		
State	204a	Idaho
County	204b	Custer County
(if applicable) City or Town	204c	'NA'
Agency Use	204d	
	204e	
	204f	
5. Discharge Point Description Discharge is into (check one): (see instructions)		
Stream (includes ditches, arroyos, and other intermittent watercourses)	205a	☒ STR
Lake		☐ LKE
Ocean		☐ OCE
Municipal Sanitary Wastewater Transport System		☐ MTS
Municipal Combined Sanitary and Storm Transport System		☐ MCS

DISCHARGE SERIAL NUMBER

FOR AGENCY USE

Municipal Storm Water Transport System		☐ STS
Well (Injection)		☐ WEL
Other		☐ OTH
If 'other' is checked, specify	205b	

6. **Discharge Point — Lat/Long** Give the precise location of the point of discharge to the nearest second.

Latitude	206a	44 DEG 18 MIN 03 SEC
Longitude	206b	114 DEG 33 MIN 52 SEC

7. **Discharge Receiving Water Name** Name the waterway at the point of discharge.(see instructions)

207a: Un-Named Creek

If the discharge is through an outfall that extends beyond the shoreline or is below the mean low water line, complete Item 8.

207b:

For Agency Use		
Major	Minor	Sub

207c: For Agency Use 303e

8. **Offshore Discharge**

a. **Discharge Distance from Shore** 208a: 'NA' feet

b. **Discharge Depth Below Water Surface** 208b: 'NA' feet

9. **Discharge Type and Occurrence**

a. **Type of Discharge** Check whether the discharge is continuous or intermittent. (see instructions) 209a: ☒ (con) Continuous ☐ (int) Intermittent

b. **Discharge Occurrence Days per Week** Enter the average number of days per week (during periods of discharge) this discharge occurs. 209b: 7 days per week

c. **Discharge Occurrence** —Months If this discharge normally operates (either intermittently, or continuously) on less than a year-around basis (excluding shutdowns for routine maintenance), check the months during the year when the discharge is operating. (see instructions) 209c: ☐ JAN ☐ FEB ☐ MAR ☐ APR ☐ MAY ☐ JUN ☐ JUL ☐ AUG ☐ SEP ☐ OCT ☐ NOV ☐ DEC 'NA'

Complete Items 10 and 11 if "intermittent" is checked in Item 9.a. Otherwise, proceed to Item 12.

10. **Intermittent Discharge Quantity** State the average volume per discharge occurrence in thousands of gallons. 210: 'NA' thousand gallons per discharge occurrence.

11. **Intermittent Discharge Duration and Frequency**

a. **Intermittent Discharge Duration Per Day** State the average number of hours per day the discharge is operating. 211a: 'NA' hours per day

b. **Intermittent Discharge Frequency** State the average number of discharge occurrences per day during days when discharging. 211b: 'NA' discharge occurrences per day

12. **Maximum Flow Period** Give the time period in which the maximum flow of this discharge occurs. 212: From Apr. (month) to June (month)

DISCHARGE SERIAL NUMBER

FORM APPROVED
OMB No. 158-R0100

FOR AGENCY USE

13. **Activity Description** Give a narrative description of activity producing this discharge.(see instructions)

213a See Attached Narrative- section 2.2.1.

14. **Activity Causing Discharge** For each SIC Code which describes the activity causing this discharge, supply the type and maximum amount of either the raw material consumed (Item 14a) or the product produced (Item 14b) in the units specified in Table I of the Instruction Booklet. For SIC Codes not listed in Table I, use raw material or production units normally used for measuring production.(see instructions)

a. **Raw Materials**

	SIC Code	Name	Maximum Amount/Day	Unit (See Table I)	Shared Discharges (Serial Number)
214a	(1)	(2)	(3)	(4)	(5)
	1061	Non-metallic minerals; ferro-alloy ores.	100,000	tons	none

b. **Products**

	SIC Code	Name	Maximum Amount/Day	Unit (See Table I)	Shared Discharges (Serial Number)
214b	(1)	(2)	(3)	(4)	(5)
	1061	Non-metallic minerals; ferro-alloy ores.	25,000	tons	none

DISCHARGE SERIAL NUMBER

FOR AGENCY USE

15. Waste Abatement

a. **Waste Abatement Practices** Describe the waste abatement practices used on this discharge with a brief narrative. (see instructions)

215a

Narrative: See Attached Narrative- sections 1.5 and 2.5

b. **Waste Abatement Codes** Using the codes listed in Table II of the Instruction Booklet, describe the waste abatement processes for this discharge in the order in which they occur if possible.

215b

(1) 'NA', (2) _____, (3) _____,
(4) _____, (5) _____, (6) _____,
(7) _____, (8) _____, (9) _____,
(10) _____, (11) _____, (12) _____,
(13) _____, (14) _____, (15) _____,
(16) _____, (17) _____, (18) _____,
(19) _____, (20) _____, (21) _____,
(22) _____, (23) _____, (24) _____,
(25) _____.

DISCHARGE SERIAL NUMBER

FORM APPROVED
OMB No. 158–R0100

FOR AGENCY USE

16. Wastewater Characteristics

Check the box beside each constituent which is present in the effluent (discharge water). This determination is to be based on actual analysis or best estimate.(see instructions)

Parameter 216	Present	Parameter 216	Present
Color 00080		Copper 01042	XX
Ammonia 00610		Iron 01045	XX
Organic nitrogen 00605		Lead 01051	XX
Nitrate 00620		Magnesium 00927	
Nitrite 00615		Manganese 01055	XX
Phosphorus 00665		Mercury 71900	
Sulfate 00945	XX	Molybdenum 01062	XX
Sulfide 00745	XX	Nickel 01067	
Sulfite 00740		Selenium 01147	
Bromide 71870		Silver 01077	
Chloride 00940	XX	Potassium 00937	
Cyanide 00720		Sodium 00929	XX
Fluoride 00951		Thallium 01059	
Aluminum 01105		Titanium 01152	
Antimony 01097		Tin 01102	
Arsenic 01002		Zinc 01092	XX
Beryllium 01012		Algicides* 74051	
Barium 01007		Chlorinated organic compounds* 74052	
Boron 01022		Pesticides* 74053	
Cadmium 01027		Oil and grease 00550	
Calcium 00916		Phenols 32730	
Cobalt 01037		Surfactants 38260	
Chromium 01034		Chlorine 50060	
Fecal coliform bacteria 74055		Radioactivity* 74050	

*Specify substances, compounds and/or elements in Item 26.

Pesticides (insecticides, fungicides, and rodenticides) must be reported in terms of the acceptable common names specified in *Acceptable Common Names and Chemical Names for the Ingredient Statement on Pesticide Labels,* 2nd Edition, Environmental Protection Agency, Washington, D.C. 20250, June 1972, as required by Subsection 162.7(b) of the Regulations for the Enforcement of the Federal Insecticide, Fungicide, and Rodenticide Act.

DISCHARGE SERIAL NUMBER

FOR AGENCY USE

17. **Description of Intake and Discharge**

For each of the parameters listed below, enter in the appropriate box the value or code letter answer called for.(see instructions)

In addition, enter the parameter name and code and all required values for any of the following parameters if they were checked in Item 16; ammonia, cyanide, aluminum, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc, phenols, oil and grease, and chlorine (residual).

Parameter and Code 217a	Influent		Effluent					
	Untreated Intake Water (Daily Average) (1)	In-Plant Treated Intake Water (Daily Average) (2)	Daily Average (3)	Minimum Value Observed or Expected During Discharge Activity (4)	Maximum Value Observed or Expected During Discharge Activity (5)	Frequency of Analysis (6)	Number of Analyses (7)	Sample Type (8)
Flow* Gallons per day 00056	864,000		864,000	864,000	2,160,000			
pH Units 00400	6.0-9.0		X	6.0	9.0	daily		
Temperature (winter) ° F 74028	9.8°C			9.8°C	10.8°C	weekly		
Temperature (summer) ° F 74027	9.8°C-16.0°C			9.8°C	16.0°C	weekly		
Biochemical Oxygen Demand (BOD 5-day) mg/l 00310	none					monthly		
Chemical Oxygen Demand (COD) mg/l 00340	none					monthly		
Total Suspended (nonfilterable) Solids mg/l 00530	0-500 mg/l					monthly		
Specific Conductance micromhos/cm at 25° C 00095	115-600		X	115	600	monthly		
Settleable Matter (residue) ml/l 00545	0-500 mg/l							

*Other discharges sharing intake flow (serial numbers).(see instructions)

17. (Cont'd.)

Parameter and Code 217a	Influent		Effluent					
	Untreated Intake Water (Daily Average) (1)	In-Plant Treated Intake Water (Daily Average) (2)	Daily Average (3)	Minimum Value Observed or Expected During Discharge Activity (4)	Maximum Value Observed or Expected During Discharge Activity (5)	Frequency of Analysis (6)	Number of Analyses (7)	Sample Type (8)
See attached								
analyses of								
ground water								
included in								
Tables II and								
III of the								
narrative.								

18. **Plant Controls** Check if the following plant controls are available for this discharge. — 218

Alternate power source for major pumping facility. ☒ APS

Alarm or emergency procedure for power or equipment failure ☒ ALM

Complete item 19 if discharge is from cooling and/or steam water generation and water treatment additives are used.

19. **Water Treatment Additives** If the discharge is treated with any conditioner, inhibitor, or algicide, answer the following:

a. Name of Material(s) — 219a 'NA'

b. Name and address of manufacturer — 219b 'NA'

c. Quantity (pounds added per million gallons of water treated). — 219c 'NA'

d. Chemical composition of these additives (see instructions). 219d 'NA'

Complete items 20-25 if there is a thermal discharge (e.g., associated with a steam and/or power generation plant, steel mill, petroleum refinery, or any other manufacturing process) and the total discharge flow is 10 million gallons per day or more. (see instructions)

20. Thermal Discharge Source Check the appropriate item(s) indicating the source of the discharge. (see instructions) 220

- Boiler Blowdown ☐ BLBD
- Boiler Chemical Cleaning ☐ BCCL
- Ash Pond Overflow ☐ APOF
- Boiler Water Treatment — Evaporator Blowdown ☐ EPBD
- Oil or Coal Fired Plants — Effluent from Air Pollution Control Devices ☐ OCFP 'NA'
- Condense Cooling Water ☐ COND
- Cooling Tower Blowdown ☐ CTBD
- Manufacturing Process ☐ MFPR
- Other ☐ OTHR

21. Discharge/Receiving Water Temperature Difference

Give the maximum temperature difference between the discharge and receiving waters for summer and winter operating conditions. (see instructions)

Summer 221a 'NA' °F.

Winter 221b 'NA' °F.

22. Discharge Temperature, Rate of Change Per Hour 222 'NA' °F./hour

Give the maximum possible rate of temperature change per hour of discharge under operating conditions. (see instructions)

23. Water Temperature, Percentile Report (Frequency of Occurrence)

In the table below, enter the temperature which is exceeded 10% of the year, 5% of the year, 1% of the year and not at all (maximum yearly temperature). (see instructions)

'NA'

Frequency of occurrence

	10%	5%	1%	Maximum
a. Intake Water Temperature (Subject to natural changes) 223a	°F	°F	°F	°F
b. Discharge Water Temperature 223b	°F	°F	°F	°F

24. Water Intake Velocity (see instructions) 224 'NA' feet/sec.

25. Retention Time Give the length of time, in minutes, from start of water temperature rise to discharge of cooling water. (see instructions) 225 'NA' minutes

DISCHARGE SERIAL NUMBER

FOR AGENCY USE

26. Additional Information

226 Item	Information
	See Attached Narrative and Drawings.

FORM APPROVED
OMB No. 158–R0100

STANDARD FORM C – MANUFACTURING AND COMMERCIAL

FOR AGENCY USE

SECTION II. BASIC DISCHARGE DESCRIPTION

Complete this section for **each** discharge indicated in Section I, Item 9, that is to surface waters. This includes discharges to municipal sewerage systems in which the wastewater does not go through a treatment works prior to being discharged to surface waters. Discharges to wells must be described where there are also discharges to surface waters from this facility. **SEPARATE DESCRIPTIONS OF EACH DISCHARGE ARE REQUIRED EVEN IF SEVERAL DISCHARGES ORIGINATE IN THE SAME FACILITY.** All values for an existing discharge should be representative of the twelve previous months of operation. If this is a proposed discharge, values should reflect best engineering estimates.

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

1. Discharge Serial No. and Name		
a. **Discharge Serial No.** (see instructions)	201a	003
b. **Discharge Name** Give name of discharge, if any. (see instructions)	201b	Sedimentation Pond
c. **Previous Discharge Serial No.** If previous permit application was made for this discharge (see Item 4, Section I), provide previous discharge serial number.	201c	none
2. Discharge Operating Dates		
a. **Discharge Began Date** If the discharge described below is in operation, give the date (within best estimate) the discharge began.	202a	'NA' (YR MO)
b. **Discharge to Begin Date** If the discharge has never occurred but is planned for some future date, give the date (within best estimate) the discharge will begin.	202b	80 12 (YR MO)
c. **Discharge to End Date** If discharge is scheduled to be discontinued within the next 5 years, give the date (within best estimate) the discharge will end.	202c	'NA' (YR MO)
3. Engineering Report Available Check if an engineering report is available to reviewing agency upon request. (see instructions)	203	☒
4. Discharge Location Name the political boundaries within which the point of discharge is located.		
State	204a	Idaho
County	204b	Custer County
(if applicable) City or Town	204c	'NA'
Agency Use	204d	
	204e	
	204f	
5. Discharge Point Description Discharge is into (check one): (see instructions)		
Stream (includes ditches, arroyos, and other intermittent watercourses)	205a	☒STR
Lake		☐LKE
Ocean		☐OCE
Municipal Sanitary Wastewater Transport System		☐MTS
Municipal Combined Sanitary and Storm Transport System		☐MCS

DISCHARGE SERIAL NUMBER

FOR AGENCY USE

Municipal Storm Water Transport System ☐ STS

Well (Injection) ☐ WEL

Other ☐ OTH

If 'other' is checked, specify — 205b

6. **Discharge Point — Lat/Long** Give the precise location of the point of discharge to the nearest second.

Latitude — 206a: 44 DEG 17 MIN 46 SEC

Longitude — 206b: 114 DEG 32 MIN 41 SEC

7. **Discharge Receiving Water Name** Name the waterway at the point of discharge.(see instructions) — 207a: Pat Hughes Creek

If the discharge is through an outfall that extends beyond the shoreline or is below the mean low water line, complete Item 8.

207b

For Agency Use		
Major	Minor	Sub

207c

For Agency Use
303e

8. **Offshore Discharge**

a. **Discharge Distance from Shore** — 208a: 'NA' feet

b. **Discharge Depth Below Water Surface** — 208b: 'NA' feet

9. **Discharge Type and Occurrence**

a. **Type of Discharge** Check whether the discharge is continuous or intermittent. (see instructions) — 209a: ☒ (con) Continuous ☐ (int) Intermittent

b. **Discharge Occurrence Days per Week** Enter the average number of days per week (during periods of discharge) this discharge occurs. — 209b: 7 days per week

c. **Discharge Occurrence** —Months If this discharge normally operates (either intermittently, or continuously) on less than a year-around basis (excluding shutdowns for routine maintenance), check the months during the year when the discharge is operating. (see instructions) — 209c: ☐ JAN ☐ FEB ☐ MAR ☐ APR ☐ MAY ☐ JUN ☐ JUL ☐ AUG 'NA' ☐ SEP ☐ OCT ☐ NOV ☐ DEC

Complete Items 10 and 11 if "intermittent" is checked in Item 9.a. Otherwise, proceed to Item 12.

10. **Intermittent Discharge Quantity** State the average volume per discharge occurrence in thousands of gallons. — 210: 'NA' thousand gallons per discharge occurrence.

11. **Intermittent Discharge Duration and Frequency**

a. **Intermittent Discharge Duration Per Day** State the average number of hours per day the discharge is operating. — 211a: 'NA' hours per day

b. **Intermittent Discharge Frequency** State the average number of discharge occurrences per day during days when discharging. — 211b: 'NA' discharge occurrences per day

12. **Maximum Flow Period** Give the time period in which the maximum flow of this discharge occurs. — 212: From Apr. (month) to June (month)

DISCHARGE SERIAL NUMBER

FORM APPROVED
OMB No. 158--R0100

FOR AGENCY USE

13. **Activity Description** Give a narrative description of activity producing this discharge.(see instructions)

213a See Attached Narrative.- section 2.2.1.

14. **Activity Causing Discharge** For each SIC Code which describes the activity causing this discharge, supply the type and maximum amount of either the raw material consumed (Item 14a) or the product produced (Item 14b) in the units specified in Table I of the Instruction Booklet. For SIC Codes not listed in Table I, use raw material or production units normally used for measuring production.(see instructions)

a. **Raw Materials**

	SIC Code	Name	Maximum Amount/Day	Unit (See Table I)	Shared Discharges (Serial Number)
214a	(1)	(2)	(3)	(4)	(5)
	1061	Non-metallic minerals; ferro-alloy ores.	100,000	tons	none

b. **Products**

	SIC Code	Name	Maximum Amount/Day	Unit (See Table I)	Shared Discharges (Serial Number)
214b	(1)	(2)	(3)	(4)	(5)
	1061	Non-metallic minerals; ferro-alloy ores.	25,000	tons	none

DISCHARGE SERIAL NUMBER

FOR AGENCY USE

15. **Waste Abatement**

a. **Waste Abatement Practices** Describe the waste abatement practices used on this discharge with a brief narrative. (see instructions)

215a

Narrative: See Attached Narrative- secitons 1.5 and 2.5.

b. **Waste Abatement Codes** Using the codes listed in Table II of the Instruction Booklet, describe the waste abatement processes for this discharge in the order in which they occur if possible.

215b

(1) 'NA', (2) _____, (3) _____,
(4) _____, (5) _____, (6) _____,
(7) _____, (8) _____, (9) _____,
(10) _____, (11) _____, (12) _____,
(13) _____, (14) _____, (15) _____,
(16) _____, (17) _____, (18) _____,
(19) _____, (20) _____, (21) _____,
(22) _____, (23) _____, (24) _____,
(25) _____.

DISCHARGE SERIAL NUMBER

FORM APPROVED
OMB No. 158–R0100

FOR AGENCY USE

16. Wastewater Characteristics

Check the box beside each constituent which is present in the effluent (discharge water). This determination is to be based on actual analysis or best estimate.(see instructions)

Parameter 216	Present	Parameter 216	Present
Color 00080		Copper 01042	XX
Ammonia 00610		Iron 01045	XX
Organic nitrogen 00605		Lead 01051	XX
Nitrate 00620		Magnesium 00927	
Nitrite 00615		Manganese 01055	XX
Phosphorus 00665		Mercury 71900	
Sulfate 00945	XX	Molybdenum 01062	XX
Sulfide 00745	XX	Nickel 01067	
Sulfite 00740		Selenium 01147	
Bromide 71870		Silver 01077	
Chloride 00940	XX	Potassium 00937	
Cyanide 00720		Sodium 00929	XX
Fluoride 00951		Thallium 01059	
Aluminum 01105		Titanium 01152	
Antimony 01097		Tin 01102	
Arsenic 01002		Zinc 01092	XX
Beryllium 01012		Algicides* 74051	
Barium 01007		Chlorinated organic compounds* 74052	
Boron 01022		Pesticides* 74053	
Cadmium 01027		Oil and grease 00550	
Calcium 00916		Phenols 32730	
Cobalt 01037		Surfactants 38260	
Chromium 01034		Chlorine 50060	
Fecal coliform bacteria 74055		Radioactivity* 74050	

*Specify substances, compounds and/or elements in Item 26.

Pesticides (insecticides, fungicides, and rodenticides) must be reported in terms of the acceptable common names specified in *Acceptable Common Names and Chemical Names for the Ingredient Statement on Pesticide Labels,* 2nd Edition, Environmental Protection Agency, Washington, D.C. 20250, June 1972, as required by Subsection 162.7(b) of the Regulations for the Enforcement of the Federal Insecticide, Fungicide, and Rodenticide Act.

DISCHARGE SERIAL NUMBER

FOR AGENCY USE

17. **Description of Intake and Discharge**

For each of the parameters listed below, enter in the appropriate box the value or code letter answer called for.(see instructions)

In addition, enter the parameter name and code and all required values for any of the following parameters if they were checked in Item 16; ammonia, cyanide, aluminum, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc, phenols, oil and grease, and chlorine (residual).

Parameter and Code 217a	Influent		Effluent					
	Untreated Intake Water (Daily Average) (1)	In-Plant Treated Intake Water (Daily Average) (2)	Daily Average (3)	Minimum Value Observed or Expected During Discharge Activity (4)	Maximum Value Observed or Expected During Discharge Activity (5)	Frequency of Analysis (6)	Number of Analyses (7)	Sample Type (8)
Flow* Gallons per day 00056	864,000		864,000	864,000	2,160,000			
pH Units 00400	6.0-9.0		X	6.0	9.0	daily		
Temperature (winter) ° F 74028	9.8°C			9.8°C	10.8°C	weekly		
Temperature (summer) ° F 74027	9.8°C-16.0°C			9.8°C	16.0°C	weekly		
Biochemical Oxygen Demand (BOD 5-day) mg/l 00310	none	none				monthly		
Chemical Oxygen Demand (COD) mg/l 00340	none					monthly		
Total Suspended (nonfilterable) Solids mg/l 00530	0-500 mg/l					monthly		
Specific Conductance micromhos/cm at 25° C 00095	115-600		X	115	600	monthly		
Settleable Matter (residue) ml/l 00545	0-500 mg/l							

*Other discharges sharing intake flow (serial numbers).(see instructions)

17. (Cont'd.)

Parameter and Code 217a	Influent		Effluent					
	Untreated Intake Water (Daily Average) (1)	In-Plant Treated Intake Water (Daily Average) (2)	Daily Average (3)	Minimum Value Observed or Expected During Discharge Activity (4)	Maximum Value Observed or Expected During Discharge Activity (5)	Frequency of Analysis (6)	Number of Analyses (7)	Sample Type (8)
See attached								
analyses of								
ground water								
included in								
Tables II and								
III of the								
narrative.								

18. **Plant Controls** Check if the following plant controls are available for this discharge. — 218

Alternate power source for major pumping facility. ☒ APS

Alarm or emergency procedure for power or equipment failure ☒ ALM

Complete item 19 if discharge is from cooling and/or steam water generation and water treatment additives are used.

19. **Water Treatment Additives** If the discharge is treated with any conditioner, inhibitor, or algicide, answer the following:

a. Name of Material(s) — 219a 'NA'

b. Name and address of manufacturer — 219b 'NA'

c. Quantity (pounds added per million gallons of water treated). — 219c 'NA'

d. Chemical composition of these additives (see instructions). 219d 'NA'

Complete items 20-25 if there is a thermal discharge (e.g., associated with a steam and/or power generation plant, steel mill, petroleum refinery, or any other manufacturing process) and the total discharge flow is 10 million gallons per day or more. (see instructions)

20. Thermal Discharge Source Check the appropriate item(s) indicating the source of the discharge. (see instructions) 220

Boiler Blowdown	☐ BLBD
Boiler Chemical Cleaning	☐ BCCL
Ash Pond Overflow	☐ APOF
Boiler Water Treatment — Evaporator Blowdown	☐ EPBD
Oil or Coal Fired Plants — Effluent from Air Pollution Control Devices	☐ OCFP 'NA'
Condense Cooling Water	☐ COND
Cooling Tower Blowdown	☐ CTBD
Manufacturing Process	☐ MFPR
Other	☐ OTHR

21. Discharge/Receiving Water Temperature Difference

Give the maximum temperature difference between the discharge and receiving waters for summer and winter operating conditions. (see instructions)

Summer 221a 'NA' °F.

Winter 221b 'NA' °F.

22. Discharge Temperature, Rate of Change Per Hour 222 'NA' °F./hour

Give the maximum possible rate of temperature change per hour of discharge under operating conditions. (see instructions)

23. Water Temperature, Percentile Report (Frequency of Occurrence)

In the table below, enter the temperature which is exceeded 10% of the year, 5% of the year, 1% of the year and not at all (maximum yearly temperature). (see instructions)

'NA'

Frequency of occurrence	10%	5%	1%	Maximum
a. Intake Water Temperature (Subject to natural changes) 223a	°F	°F	°F	°F
b. Discharge Water Temperature 223b	°F	°F	°F	°F

24. Water Intake Velocity (see instructions) 224 'NA' feet/sec.

25. Retention Time Give the length of time, in minutes, from start of water temperature rise to discharge of cooling water. (see instructions) 225 'NA' minutes

DISCHARGE SERIAL NUMBER

FOR AGENCY USE

26. Additional Information

226 Item	Information
	See Attached Narrative and Drawings.

FORM APPROVED
OMB No. 158–R0100

FOR AGENCY USE

STANDARD FORM C – MANUFACTURING AND COMMERCIAL

SECTION III. WASTE ABATEMENT REQUIREMENTS & IMPLEMENTATION (CONSTRUCTION) SCHEDULE

This section requires information on any uncompleted implementation schedule which may have been imposed for construction of waste abatement facilities. Such requirements and implementation schedules may have been established by local, State, or Federal agencies or by court action. In addition to completing the following items, a copy of an official implementation schedule should be attached to this application. IF YOU ARE SUBJECT TO SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES, EITHER BECAUSE OF DIFFERENT LEVELS OF AUTHORITY IMPOSING DIFFERENT SCHEDULES (Item 1a.) AND/OR STAGED CONSTRUCTION OF SEPARATE OPERATION UNITS (Item 1c), SUBMIT A SEPARATE SECTION III FOR EACH ONE.

FOR AGENCY USE
SCHED. NO. _____

1. **Improvements** — 300

a. **Discharge Serial Number Affected** List the discharge serial numbers, assigned in Section II, that are covered by this implementation schedule. — 301a: 'NA', _____, _____, _____, _____, _____.

b. **Authority Imposing Requirements** Check the appropriate item indicating the authority for implementation schedule. If the identical implementation schedule has been ordered by more than one authority, check the appropriate items. (see instructions) — 'NA'

Locally developed plan	301b	☐LOC
Areawide Plan		☐ARE
Basic Plan		☐BAS
State approved implementation schedule		☐SQS
Federal approved water quality standards implementation plan.		☐WQS
Federal enforcement procedure or action		☐ENF
State court order		☐CRT
Federal court order		☐FED

c. **Facility Requirement.** Specify the 3-character code of those listed below that best describes in general terms the requirement of the implementation schedule and the applicable six-character abatement code(s) from Table II of the Instruction booklet. If more than one schedule applies to the facility because of a staged construction schedule, state the stage of construction being described here with the appropriate general action code. Submit a separate Section III for each stage of construction planned.

3-character (general) — 301c: 'NA'

6-character (specific) (see Table II) — 301d: _____ 'NA' _____

New Facility	NEW X
Modification (no increase in capacity or treatment)	MOD
Increase in Capacity	INC
Increase in Treatment Level	INT
Both increase in Treatment Level and Capacity	ICT
Process Change	PRO
Elimination of Discharge	ELI

FOR AGENCY USE

2. **Implementation Schedule and** 3. **Actual Completion Dates**

Provide dates imposed by schedule and any actual dates of completion for implementation steps listed below. Indicate dates as accurately as possible. **(see instructions)**

'NA'

Implementation Steps		2. Schedule (Yr./Mo./Day)		3. Actual Completion (Yr./Mo./Day)
a. Preliminary plan complete	302a	____/____/____	303a	____/____/____
b. Final plan submission	302b	____/____/____	303b	____/____/____
c. Final plan complete	302c	____/____/____	303c	____/____/____
d. Financing complete & contract awarded	302d	____/____/____	303d	____/____/____
e. Site acquired	302e	____/____/____	303e	____/____/____
f. Begin action (e.g., construction)	302f	____/____/____	303f	____/____/____
g. End action (e.g., construction)	302g	____/____/____	303g	____/____/____
h. Discharge Began	302h	____/____/____	303h	____/____/____
i. Operational level attained	302i	____/____/____	303i	____/____/____

CYPRUS MINES--THOMPSON CREEK PROJECT

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
NPDES Application

Narrative

Cyprus Mines Corporation, a wholly-owned subsidiary of Standard Oil Company (Indiana), is proposing to construct an open pit molybdenum mine and concentrator at Thompson Creek in central Idaho. The project is scheduled to commence operation in 1983 with an annual production rate of 15-20 million pounds of molybdenum in the form of molybdenum disulfide (MoS_2).

The proposed Thompson Creek Project is located in Custer County, Idaho approximately 5 miles north of the Salmon River and 35 miles southwest of the county seat of Challis. The project location is shown in Figure 1.

Cyprus Mines Corporation staked its first mineral claims at Thompson Creek in 1967. Since that time, Cyprus has drilled over 160,000 feet of exploration holes from surface and underground locations and has outlined an important molybdenum deposit containing at least 200 million tons of ore averaging 0.18% MoS_2.

As shown in Figure 2, the discovery is located within a 15 square mile claim block straddling the boundary between Challis National Forest to the north and lands administered by the Bureau of Land Management to the south.

Most of the claims are held in the name of Tuscarora Mining Corporation, a wholly-owned subsidiary of Cyprus.

During the 1974-75 time period, a preliminary feasibility study of a large open pit mine and mill was completed by Kaiser Engineers and a detailed Environmental Impact Assessment was prepared by VTN Corporation. On the basis of this work, Cyprus decided to perform additional technical studies to more closely define the proposed project. Since September 1979, engineering has been coordinated by a joint venture of Wright Engineers Limited of Vancouver, Canada and Morrison-Knudsen Company, Inc. of Boise, Idaho.

On May 25, 1979, Cyprus submitted its Notice of Intent to Operate and Initial Plan of Operations to the Challis National Forest. After review of the Plan of Operation and consultation between the Forest Service, Cyprus and other interested agencies, the Forest Supervisor advised that an Environmental Impact Statement (EIS) would be required to support Federal action on the Operating Plan.

On September 25, 1979, the Challis National Forest and Cyprus entered into a Memorandum of Understanding (MOU) specifying the responsibilities for the preparation of the EIS. Under a third-party agreement the Forest Service contracted the preparation of the EIS to VTN Corporation while retaining the ultimate responsibility for its execution.

Cyprus assumed the financial responsibility for the preparation of the EIS.

MINERAL PROJECT--GENERAL DESCRIPTION

1.0 General

The operation of a project such as that proposed at Thompson Creek involves a wide range of support services and facilities in addition to the actual mining and mineral-processing activities. The services and facilities required include maintenance shops, warehouses and change-houses, as well as provisions for water supply, solid waste disposal, sewage treatment and power transmission and distribution. While the need for and functions of these and other ancillary facilities are relatively straight forward, the actual mining and ore processing methods are generally less well understood. Therefore, this section provides a brief background description of the ore extracting and processing methodology whereby one or more valuable minerals are produced in a concentrated, saleable form. The basic steps described herein include:

- mining the ore.
- crushing and grinding the ore.
- separating the valuable mineral from waste by 'flotation', a concentration process carried out in a water medium.
- dewatering, packaging and shipping the obtained concentrate

- discharging the final waste or 'tailings', (a solids/ liquid mixture) into a tailings impoundment area, and reclaiming the water for re-use in the flotation process.

1.1 Mining

The two conventional hard rock minerals extraction methods are 'underground' and 'open-pit' mining.

Underground mining is usually carried out in deep orebodies--those lying more than 1500 feet below the surface. A shaft or tunnel is driven to reach the mineral-bearing rock, whereupon the rock is broken up by drilling and blasting. The rock is then hauled to the surface for subsequent processing.

Open-pit mining is employed for shallower orebodies. The first step in this method is the removal of overlying waste material, or 'overburden', to expose the ore. Both the overburden and ore must be drilled and blasted so that the broken rock can be excavated with large electric shovels and hauled away in heavy-duty off-highway trucks.

Underground mining has been rejected for use at Thompson Creek for the following reasons:

(1) Due to the need to leave large portions of the orebody in place for structural support, underground methods can recover relatively low amounts of ore (e.g. as low as 35%) compared to open-pit mining.

(2) Although underground mining methods require less capital equipment than open-pit mining, the operating costs are higher due to the lower production rates and the higher levels of operating skills required.

1.2 Crushing and Grinding

The broken ore excavated from the mine is reduced to size categories ranging from fine sand to powder in the crushing and grinding steps. The valuable mineral particles are released from the surrounding waste material and are then ready for subsequent separation and recovery.

During crushing, the mine ore is reduced in size from 24 inches or greater in diameter to less than ½ inch; grinding then reduces the ½ inch material to a fine powder.

Conventional crushing is a dry process carried out without water, usually in three stages. The ore is reduced in primary crushing to less than 10 inches in size, in secondary crushing to 2 inches, and in tertiary crushing to the final consistency required. In the standard primary crusher, one conical head gyrates within a larger stationary cone to provide the crushing action. Secondary and tertiary crushing use 'cone' crushers similar to the gyratory type except that the internal cone gyrates much more rapidly.

Conventional grinding is normally a 'wet' operation--that is, water is added to the crushed ore--and is completed in two stages. The first stage is rod milling, where ore is fed to a rotating drum containing steel rods as the grinding media. The second stage is ball milling, where ore is fed to a rotating drum containing steel balls as the grinding media.

A recent development in crushing and grinding practice is 'autogenous' grinding wherein the rock itself is used as the grinding medium rather than steel balls or rods. Autogenous grinding consumes significantly less power and steel grinding media than the conventional techniques and has the added advantage of eliminating the secondary and tertiary crushing steps.

In a variation of the autogenous grinding method, large steel balls are added to the mill to assist in grinding when the rock is not hard enough to function as a self-grinding medium; this variation is called 'semi-autogenous grinding' (SAG).

Tests of several large samples of Thompson Creek ore have confirmed that primary crushing followed by semi-autogenous grinding will release the molybdenum mineral from the waste rock in a cost effective manner.

1.3 Flotation Concentration

The slurry mixture of finely ground ore and water next passes to the flotation step wherein the valuable mineral is separated from the waste materials.

When mineral particles are coated with certain surface-active chemicals, they will preferentially attach themselves to air bubbles.

Flotation is accomplished by bubbling air through the slurry in a series of mechanically agitated cells in the presence of two types of specific surface-active reagents. Some of the reagents promote frothing so the desired mineral floats up with the froth bubbles, while others depress certain minerals and waste so as to minimize their tendency to float. The process is called flotation concentration.

Flotation concentration circuits may range from the very complex, where two or three desired minerals are selectively recovered and separated (e.g. copper/lead/zinc ores), to simple, single-mineral recovery circuits. At Thompson Creek only one mineral - molybdenum disulfide - is presently being considered for recovery.

The concentration ratio (i.e. the ratio of ore processed to concentrate recovered) is dependent on the actual types of minerals and their degree of dissemination in the ore. Concentration ratios are usually 20-30:1 for zinc minerals, 40-60:1 for copper and 500:1 for molybdenum disulfide. The percentage of mineral recovery also varies with the type and complexity of the ore. In the case of molybdenum ores, recovery can be as much as 90%.

1.4 Concentate Dewatering, Packaging and Shipping

The separated concentrate slurry (solids/water mixture) flows to a thickener in which the solids are allowed to settle to the bottom and excess water is decanted from the top of the thickener tank.

In this step the solids concentration is increased from 30-35% to 50-60%. The denser slurry is then pumped from the bottom of the thickener to a filter for further water removal through a cloth medium under vacuum. The resulting filter cake contains about 82-85% solids, or only 15-18% water. The wet cake is dried by heating to a low moisture content dictated by shipping and marketing considerations, usually about 5-8% water. The dried concentrate may be shipped directly in bulk or (more likely) packaged in drums or other containers prior to shipping. The water removed during the thickening and filtering steps is recycled for use in the grinding and flotation steps.

1.5 Tailing Disposal

The waste rock/water slurry from the flotation cells, called tailings, comprises 30-35% solids and is passed through a pipeline to the tailings impoundment area. It is normal practice to pass the slurry through 'cyclones', a water/solid separation and particle size classification device based on centrifugal force. The coarse fraction or 'sands' is deposited on the periphery of the impoundment area, thus serving as embankment building material. The fine fraction or 'slimes', along with most of the water, is allowed to flow into the impoundment area, or 'tailings pond', where the solids settle to the bottom. Water is reclaimed from the tailings pond and pumped back to the grinding and flotation plant.

This system achieves containment of both the solid tailings and the water used in the process. It is a 'closed' water system wherein the water and entrained reagents are continously recycled.

DESCRIPTION OF PROPOSED FACILITIES

2.0 General

The proposed Thompson Creek facilities are shown in the Area Plan in Figure 3.

Ore will be delivered by 170-ton trucks from the mine to the primary crusher located at an elevation of about 7100 feet. Crushed ore will then be transported overland by belt conveyor to the concentrator, which will be situated 7000 feet to the east-southeast at an elevation of about 7550 feet. Tailings from the concentrator will flow northward through a 7000-foot pipeline to the tailings impoundment area located in the upper reaches of the Bruno Creek watershed.

2.1 Site Selection

Cyprus and its consultants have considered alternate sites for the various project facilities, including overburden dumps and tailings impoundment facilities. For these analyses, the following site-selection criteria have been utilized:

(1) Mine - fixed location

(2) Crusher - minimum truck haul distance

- outside ultimate pit limit

(3) Concentrator - close to crusher and tailings impoundment

- sufficient elevation to allow gravity flow of tailings to impoundment for the first eight years.

- sufficient area for coarse ore storage with minimum site preparation.

- minimum cut and fill for conveyor connecting crusher and concentrator.

(4) Overburden Dumps - minimum truck haul distance

- dump stability and drainage

(5) Tailings Impoundment - see section 2.5

Cyprus has attempted to minimize the area impacted directly by the project. As a result, sites close to the mine pit will be preferred to far away sites, everything else being equal.

Based on the application of the above criteria and the engineering studies performed to date, the preferred locations for the various project facilities including overburden dumps and tailings impoundment are indicated in Figure 3. It should be emphasized that the selections are strongly interrelated. For example, the tailings impoundment site strongly influences the location of the concentrator which in turn must be coordinated with the crusher site.

With regard to the concentrator, three sites have received particular attention, including Sites A, B, and C shown in Figure 3.

The conditions evident at each site revealed the following:

(1) Site A - allows gravity flow of tailings to impoundment for the first eight years.
- adequate area for buildings and ore storage.
- close to main access road.
- conveyor and road from crusher will require some cut and fill.

(2) Site B - allows gravity flow of tailings to impoundment.
- adequate area for building and ore storage.
- more distant from main access road than Site A.
- conveyor and road from crusher will require much more cut and fill than for Site A.

(3) Site C - all tailings must be pumped to impoundment.
- will require major access road up Thompson Creek
- adequate area for buildings and ore storage.
- lower elevation than Site A and B.
- more site preparation.

Based on engineering work conducted to date, Site A is preferred for the concentrator and related facilities.

The land area which will be directly affected by the proposed facilities is approximately 2,100 acres or 3.44 square miles.

2.2 Mining

2.2.1 Overburden Removal and Storage

Prior to the commencement of mining, approximately 100 million tons of overburden will be removed as 'preproduction stripping' concurrently with the construction of project facilities.

Most of this overburden will be placed in disposal areas surrounding the pit (as shown on the Area Plan) but some will be used as fill during construction of the overland conveyor, the access road and possibly the starter dam for the tailing impoundment area.

Overburden and waste rock removed during actual mine operations will also be placed in dumps located relatively close to the pit. The tops of the dumps will be contoured to permit proper drainage. Settling ponds will be constructe downstream from the dumps to trap sediment from run-off water. Based on laboratory tests simulating rainfall on the disposal area, it is expected that the water from the settling ponds will be suitable for discharge to nearby streams. The quality of the water in the settling ponds will be monitored on a continuing basis to assure that it meets discharge requirements.

Mine waste rock dumps will be located in the Buckskin, Un-named and Pat Hughes Creek valleys. Sediment ponds are to be located downstream of each of the waste rock dumps to trap soil eroded from the dump areas. Conceptual designs have been made for the sediment ponds based upon available information (Feb. 1980). Detailed design will be made following the results of site specific studies in the summer of 1980.

The sediment ponds have been designed to store the estimated 1 year of sediment plus the 10 year 24 hour storm. An emergency spillway is provided to pass the 100 year precipitation flood. For conceptual design purposes, it has been assumed that sediment will occur from about 50% of the disturbed surface area. In addition, a high sediment yield has been assumed.

The sediment ponds will be monitored to ensure necessary storage capacity for sediment is available. The ponds will be dredged and the sediment buried in the waste dump areas or stockpiled and utilized for reclamation purposes.

Preliminary studies indicate sedimentation of the soil particles will require about 24 hours in a 5 foot depth of water. The outlet pipe from the sediment pond provides for variable water depths. The water in the sediment pond will be monitored prior to release to ensure that discharge requirements are met.

Average annual discharge flows range from 0.39 to 1.73 c.f.s. The sediment pond dams are designed as water retaining structures. The embankments will be constructed from rock fill and compacted soil incorporating any necessary internal drainage system and seepage cut-off trench.

Based on attached water quality analyses of overburden column leach tests and analyses of Twin Apex Adit (representative of water quality in volcanics and Milligan formations), the expected quality of water from pit dewatering (est. 600 gpm) and runoff thru and around overburden disposal areas is expected to be acceptable. Treatment prior to discharge will consist of removal of suspended sediment. (see Table III)

Seepage from the sediment pond, under and through the embankment, is expected to be minimal. The quality of any downstream surface waters is expected to be similar in quality to the existing groundwater. In addition to any seepage cut-off system that may be required in the embankment, the fine grained sediments entering the pond will form a blanket of low permeability soil and effectively seal the basin.

Most of the preproduction stripping will be accomplished by the same large electric shovels and trucks which will mine ore during normal production. However this equipment is too large to remove the first overburden and prepare the construction sites in an efficient manner, so smaller equipment may be required.

2.2.2 Mining Methods

Overburden removal and ore mining will include the following operations:

- drilling, sampling and assaying to closely define the grade of the ore to be mined.
- Blasting to fragment the ore. (About 10,000 tons per year of explosive will be consumed.)
- Loading with large capacity electric shovels.

The stripping ratio (i.e. tye proportion of overburden and waste rock relative to ore) will be very high during the early years of production, probably about 6:1. This ratio will decrease gradually over the years, and the average stripping ratio over the life of the orebody will be about 3:1.

2.2.3 Production Rates

Cyprus plans to operate the mine 24 hours per day, seven days per week. The average daily production rate, including overburden and ore, will be about 100,000 tons per day (i.e. 25,000 tons of ore and 75,000 tons of overburden and waste rock). During the early years, daily production will be as high as 175,000 tons per day.

2.3. Crushing and Conveying

2.3.1 Description

The mined ore will be delivered by truck to a gyratory primary crusher where rocks will be reduced to less than 10 inches in size. The crushed ore will then be fed onto a 60-inch wide belt conveyor for transport approximately 7000 feet overland to the concentrator facilities. The ore will discharge from the belt conveyor into a 'coarse ore' stockpile with about 75,000 tons live storage capacity located near the concentrator.

2.3.2 Reagent Handling

Flotation reagents will be received at the site in tank trucks and/or steel drums and will be stored in a building adjacent to the concentrator. The various reagents will be prepared for use by mixing with water in small agitating tanks. The mixed reagents will be pumped to the flotation area and fed into the process with mechanical feeders. The proposed reagents are described in Table I.

A sump inside the reagent building will catch any small spills. A containment area will be constructed around the reagent building of sufficient size to contain the largest possible spill. Any spilled reagents will be returned to the flotation process.

2.4 Concentrate Drying and Packaging

2.4.1 General

About 50 tons per day of molybdenum disulfide concentrate from the flotation circuit will be dried and packaged for shipment to market. At this stage of the process, many molybdenum operations include a 'leaching' operation in which contaminants such as calcium, lead, and copper, are removed from the concentrate by mixing it with acid and brine solutions. While it has been determined from test work that the Thompson Creek concentrate probably will meet current market requirements without leaching, sufficient space will be provided in the concentrator building to construct any leaching facilities which may be necessary in the future to meet more stringent specifications.

2.5 Tailings Impoundment and Water Reclamation

2.5.1 Location

Cyprus and its consultants have evaluated 13 sites for tailings impoundment. Important criteria used during the study included the following:

(1) Required capacity of 200 million tons.

(2) Minimum number and size of sites.

(3) Minimum distance from potential concentrator sites.

(4) Minimum upstream drainage areas.

(5) Minimum interference with public access.

(6) Minimum adverse visual impact.

(7) Maximum distance to major streams.

(8) Potential for future expansion.

(9) Potential for underlying mineralization.

As a result of this study, the Upper Bruno Creek Site A has been selected as the preferred location for the tailings impoundment. It will have the ability to store at least 200 million tons of tailings (i.e. more than 20 years production).

It is anticipated that production may continue at Thompson Creek beyond the initial 20 year period described in this proposal. If additional tailings impoundment capacity is required beyond that available in Upper Bruno Creek, another site (probably one of those considered in the present study) may be developed on the basis of an up-to-date evaluation.

2.5.2 Operation

The average quantity of tailings from the flotation concentrator will be 24,950 tons per day i.e. the 25,000 tons per day feed to the concentrator less 50 tons per day of molybdenum disulfide concentrate. The tailings will flow as a 35% solids slurry at a rate of about 10,000 gallons per minute from the concentrator to a sump from which it will continue,

initially by gravity, through a 24-inch diameter pipeline to the tailings impoundment 7,000 feet to the north. The pipeline will not be buried.

In the unlikely event of a break in the pipeline, flow sensing devices will alert the operator in the control room and allow him to shut down. In addition, the pipeline will be patrolled on a regular basis to detect minor leaks. Any spillage will flow into a ditch paralleling the pipeline and service road, which will carry the slurry by gravity into the tailings impoundment during the early stages of operation or into the seepage return dam in the later stages.

The ultimate crest of the tailings impoundment will be at an elevation of 7,600 feet. As the concentrator is located at 7,550 feet, pumping of the tailings will be necessary later in the life of the project--probably after the eighth year of operation.

The tailings slurry will be passed through cyclone separators to separate the coarse 'sands' for building the embankment. The fine 'slimes' and most of the contained water will pass into the impoundment.

As solids settle out of the 'slimes', up to 70-80% of the water will be available for re-use. The reclaim water system will consist of pumps on a floating barge in the impoundment, which will deliver the water by a 24-inch diameter pipeline to a 9 million gallon storage basin located above and near the concentrator. Water will flow by gravity from the storage basin back to the concentrator.

The embankment will always be maintained at a height sufficient to capture the probable maximum flood (PMF).

The water reclaim system will be designed to pump a maximum of 1,000 gallons per minute. The reclaim water system will have a number of booster pump stages along the pipeline to provide the necessary pressure to lift the water to the storage basin. Certain of these boosters stages will be eliminated over the lifetime of the operation as the embankment increases in height.

2.5.3 Impoundment

The impoundment will be designed to accommodate at least 200 million tons of tailings, or more than is expected to be produced during the first 20 years of operation.

The starter embankment will be constructed prior to the commencement of production using material from borrow source and/or overburden.

The main embankment will be constructed from the coarse tailings obtained from the cyclones stationed along the starter embankment crest. The underflow from the cyclones will be deposited downstream and, if necessary, mechanically placed and compacted by bulldozer to provide a slope of 3 horizontal to 1 vertical.

The impoundment area will receive the fine particles from the cyclone overflow. Discharge points of the tailings will be controlled to keep the water reclaim pool as remote as practicable from the embankment section. A water reclaim barge will be located in the pond to pump water back to the concentrator.

A system of blanket and finger drains will be constructed within the embankment and at the foundation level to drain the embankment. In addition, some water may seep into the soils and rock underlying the embankment. To control the quality of water flowing downstream, two systems will be constructed:

(a) A seepage return dam to capture surface water.

(b) A network of wells to monitor subsurface water around the impoundment area.

Water from the settling pond will be pumped back to the impoundment or directly to process water storage.

Testing of Thompson Creek flotation tailing samples indicates that about 34% of the tailing will be available as sands for embankment construction, which is sufficient to raise the impoundment dam height as required without additional 'borrow' material. However, a contingency 'borrow' pit has been located to provide additional rock if sufficient sands are not available from the tailing.

2.6 Support Facilities

2.6.1 Water Supply

Fresh water will be required for drinking, fire fighting, and general utility uses and to make up any process water requirements that cannot be met with reclaim water.

The average requirement of fresh water may be as low as 300-400 gallons per minute. In order to allow for peak demand periods resulting from low flow conditions in the Upper Bruno Creek and the mine pit, the fresh water system will be designed to deliver at least 6000 gallons per minute.

Water will be obtained from deep wells near lower Bruno Creek and will be pumped via buried pipeline to a fresh water tank located above and near the concentrator, from where it will flow by gravity through pipelines to the various facilities. This tank will also hold a minimum 240,000 gallon fire water reserve. If necessary, drinking water will be treated prior to distribution.

As noted in the NPDES application, section 1, item 7, the total facility intake is estimated at 12,240.0 thousand gallons per day. This total intake consists of approximately 350.0 thousand gallons per day from fresh water wells and 11,890.0 thousand gallons per day from the tailings impoundment reclaim and the seepage return dam. As noted in the attached water balance, the total from the tailings area consists of a number of different sources. The 865.0 thousand gallons per day from the open pit will be utilized in the mill when possible.

Facility water use consists of 12,240 thousand gallons per day in the mill, 30.0 thousand gallons per day for sanitary (discharged to tailings), and 120.0 thousand gallons per day for miscellaneous uses such as dust control and reclamation.

2.6.2. Electrical Power

Power will be supplied to the Project by a 90-mile long overhead line supplying approximately 30 megawatts of power at 230,000 volts to be constructed by the Salmon River Electric Co-Operative (SREC). Overhead wooden pole lines will distribute power to the various project facilities from a substation located near the concentrator building. Cyprus will pay for the new power line.

The power required for construction and for preproduction stripping will be supplied from an existing SREC line near Clayton. Up to 5,600 kilowatts are available, sufficient for these project requirements. Again Cyprus will pay all costs associated with the project power supply.

Diesel generators will be installed where necessary to provide emergency power.

2.6.3 Access and Service Roads

The main access road to the Project site will branch off Highway 75 and follow Squaw Creek to Bruno Creek, then parallel Bruno Creek for approximately 1 mile before continuing up to the site of the concentrator.

The 11-mile long road will be constructed to appropriate standards for 20-ton capacity trucks. Most traffic will result from transporting workers, fuel and other supplies to and from the site, and shipping molybdenum concentrates out.

An access road will also be constructed between the mine and the concentrator to accommodate two-way traffic for the 170 ton mine trucks. Four-wheel drive type service roads will be constructed along the routes of the overland conveyor, tailings pipeline, reclaim water line and fresh water pipeline.

A secondary project access road will be constructed in the Thompson Creek-Buckskin Creek area. While this road will be important during the construction period, it will handle minimal traffic during normal operation.

All unpaved roads will be water sprayed, as required, to suppress dust.

2.6.4 Maintenance Facilities

All maintenance facilities for the mine and the concentrator will be centralized in a building located near the concentrator with the exception of a lubrication shop (which will be located near the primary crusher) to service mine equipment.

2.6.5 Ancillary Buildings and Facilities

The following additional facilities will be provided:

- warehouse for parts and supplies
- analytical laboratory
- office building
- changehouse for workers
- car parking
- guardhouse/scalehouse
- first aid station
- fire fighting equipment

2.6.6 Fuel Supply and Storage

Fuel will be delivered in tanker trucks for transfer to large fuel storage tanks. Located near the primary crusher, the tanks will be enclosed by berms to contain any spills.

2.6.7 Site Drainage

A storm drainage system will be incorporated into the site development plan for the concentrator, wherein run-off will flow to a settling pond or the tailing impoundment. This system excludes process effluent and sanitary sewage. Surface water run-off from the Primary Crusher area will flow into the settling pond below a nearby overburden storage area.

2.6.8 Sewage Treatment and Solid Waste Disposal

Two sewage treatment plants will be provided; one will treat sanitary sewage from all facilities in the concentrator area by extended aeration, settling lagoons and chlorination of the effluent prior to discharge into the tailing impoundment; the other - a septic tank and drain field system - will handle sewage from the primary crusher area.

Solid waste will be collected and buried with the mine overburden.

CYPRUS THOMPSON CREEK
WATER QUALITY MONITORING PROGRAM
SAMPLING DATA FOR 1984
CUMULATIVE MONTHLY REPORT

STATION NAME: THOMPSON CR BELO PAT HUGHES CR TYPE: STREAM TC 1

			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SAMPLE DATE:				02/14/84			05/07/84			08/08/84			11/06/84	
AIR TEMP :							11.000			24.000				
FLOW RATE :														
WATER LEVEL:														
PHYSICAL PROPERTIES														
SAMP-TMP	FIELD	DEG. C		1.500			8.000			11.000				
COND.	FIELD	UMHO/CM		163.000			185.000			150.000			182.000	
PH	FIELD	PH		8.200			8.890			7.640			7.400	
PH	LAB	PH		7.900			7.800			7.900			7.800	
ALKALIN.	TOTAL	MG/L		68.000			66.000			60.000			58.000	
HARDNESS	TOTAL	MG/L		115.200			101.900			125.400			84.600	
SOLIDS	SUSP	MG/L		4.000			-1.000			4.000			-1.000	
TURBID.	FIELD	NTU		1.100			3.600			2.100			1.000	
CATIONS														
CALCIUM	TOTAL	MG/L								18.900				
MAGNES.	TOTAL	MG/L		4.100			4.100			3.850			4.450	
SODIUM	TOTAL	MG/L								5.750				
POTASS.	TOTAL	MG/L								0.630				
ANIONS														
CHLORIDE,		MG/L								2.690				
SULFATE ,		MG/L		60.000			32.000			8.200			14.000	
PRIMARY														
ARSENIC	TOTAL	UG/L												
CADMIUM	TOTAL	UG/L								-5.000				
CHROMIUM	T-TOT	UG/L								-5.000				
LEAD	TOTAL	UG/L					-50.000			-50.000			-50.000	

NOTES: 1) RESULTS ARE EXPRESSED IN MILLIGRAMS PER LITER UNLESS OTHERWISE INDICATED
2) ALL RESULTS ARE TOTALS UNLESS OTHERWISE INDICATED
3) A NEGATIVE VALUE DENOTES LESS THAN THE VALUE INDICATED

CYPRUS THOMPSON CREEK
WATER QUALITY MONITORING PROGRAM
SAMPLING DATA FOR 1984
CUMULATIVE MONTHLY REPORT

STATION NAME: THOMPSON CR BELO PAT HUGHES CR TYPE: STREAM TC1

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MERCURY ,TOTAL ,UG/L								-0.500				
SELENIUM,TOTAL ,UG/L								-5.000				
SECONDARY												
COPPER ,TOTAL ,UG/L					-10.000						10.000	
ZINC ,TOTAL ,UG/L					24.000						4.000	
IRON ,TOTAL ,UG/L					120.000						110.000	
MANGAN. ,TOTAL ,UG/L					-10.000						-10.000	
TRACE METALS												
MOLY. ,TOTAL ,UG/L					-50.000						-50.000	
NUTRIENTS												
NITROGEN,NITRAT,MG/L		0.600			0.800						-0.100	
PHOSPHAT,T-TOT ,MG/L		-0.050			-0.050						0.060	
ORGANICS												
CYANIDE ,TOTAL ,MG/L								0.023				

NOTES: 1) RESULTS ARE EXPRESSED IN MILLIGRAMS PER LITER UNLESS OTHERWISE INDICATED
2) ALL RESULTS ARE TOTALS UNLESS OTHERWISE INDICATED
3) A NEGATIVE VALUE DENOTES LESS THAN THE VALUE INDICATED
INQ072 - ERROR - COMMAND '4REPOR' NOT RECOGNIZED.

CYPRUS THOMPSON CREEK
WATER QUALITY MONITORING PROGRAM
SAMPLING DATA FOR 1984
CUMULATIVE MONTHLY REPORT

STATION NAME: THOMPSON CR ABOV PAT HUGHES CR TYPE: STREAM TC2

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SAMPLE DATE:		02/14/84			05/07/84			08/08/84			11/06/84	
AIR TEMP :		-1.000			12.000			21.000				
FLOW RATE :												
WATER LEVEL:												
PHYSICAL PROPERTIES												
SAMP-TMP,FIELD ,DEG. C		1.000			7.000			10.000				
COND. ,FIELD ,UMHO/CM		148.000			152.000			133.000			153.000	
PH ,FIELD ,PH		8.100			9.070			7.900			7.450	
PH ,LAB ,PH		7.800			7.600			7.700			7.700	
ALKALIN.,TOTAL ,MG/L		60.000			60.000			54.000			53.000	
HARDNESS,TOTAL ,MG/L		80.600			82.300			86.200			77.300	
SOLIDS ,SUSP ,MG/L		8.000			4.000			1.000			5.000	
TURBID. ,FIELD ,NTU		1.000			2.000			1.700			1.000	
CATIONS												
CALCIUM ,TOTAL ,MG/L								17.300				
MAGNES. ,TOTAL ,MG/L		3.100			3.100			3.050			3.750	
SODIUM ,TOTAL ,MG/L								4.450				
POTASS. ,TOTAL ,MG/L								0.570				
ANIONS												
CHLORIDE, ,MG/L								1.080				
SULFATE , ,MG/L		17.000			30.000			6.600			16.000	
PRIMARY												
ARSENIC ,TOTAL ,UG/L												
CADMIUM ,TOTAL ,UG/L								-5.000				
CHROMIUM,T-TOT ,UG/L								-5.000				
LEAD ,TOTAL ,UG/L					-50.000			-50.000			-50.000	

NOTES: 1) RESULTS ARE EXPRESSED IN MILLIGRAMS PER LITER UNLESS OTHERWISE INDICATED
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CYPRUS THOMPSON CREEK
WATER QUALITY MONITORING PROGRAM
SAMPLING DATA FOR 1984
CUMULATIVE MONTHLY REPORT

STATION NAME: THOMPSON CR ABOV PAT HUGHES CR TYPE: STREAM TC2

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MERCURY ,TOTAL ,UG/L								-0.500				
SELENIUM,TOTAL ,UG/L								-5.000				
SECONDARY												
COPPER ,TOTAL ,UG/L					-10.000						-10.000	
ZINC ,TOTAL ,UG/L					34.000						6.000	
IRON ,TOTAL ,UG/L					170.000						90.000	
MANGAN. ,TOTAL ,UG/L					-10.000						-10.000	
TRACE METALS												
MOLY. ,TOTAL ,UG/L					-50.000						-50.000	
NUTRIENTS												
NITROGEN,NITRAT,MG/L		0.300			-0.100						-0.100	
PHOSPHAT,T-TOT ,MG/L		-0.050			-0.050						0.060	
ORGANICS												
CYANIDE ,TOTAL ,MG/L								-0.005				

NOTES: 1) RESULTS ARE EXPRESSED IN MILLIGRAMS PER LITER UNLESS OTHERWISE INDICATED
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CYPRUS THOMPSON CREEK
WATER QUALITY MONITORING PROGRAM
SAMPLING DATA FOR 1984
CUMULATIVE MONTHLY REPORT

STATION NAME: THOMPSON CR ABOV PAT HUGHES CR TYPE: STREAM TC 2

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MERCURY ,TOTAL ,UG/L								-0.500				
SELENIUM,TOTAL ,UG/L								-5.000				
SECONDARY												
COPPER ,TOTAL ,UG/L					-10.000						-10.000	
ZINC ,TOTAL ,UG/L					34.000						6.000	
IRON ,TOTAL ,UG/L					170.000						90.000	
MANGAN. ,TOTAL ,UG/L					-10.000						-10.000	
TRACE METALS												
MOLY. ,TOTAL ,UG/L					-50.000						-50.000	
NUTRIENTS												
NITROGEN,NITRAT,MG/L		0.300			-0.100						-0.100	
PHOSPHAT,T-TOT ,MG/L		-0.050			-0.050						0.060	
ORGANICS												
CYANIDE ,TOTAL ,MG/L								-0.005				

NOTES: 1) RESULTS ARE EXPRESSED IN MILLIGRAMS PER LITER UNLESS OTHERWISE INDICATED
2) ALL RESULTS ARE TOTALS UNLESS OTHERWISE INDICATED
3) A NEGATIVE VALUE DENOTES LESS THAN THE VALUE INDICATED

CYPRUS THOMPSON CREEK
WATER QUALITY MONITORING PROGRAM
SAMPLING DATA FOR 1984
CUMULATIVE MONTHLY REPORT

STATION NAME: THOMPSON CR BELOW BUCKSKIN CR TYPE: STREAM TC 3

			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SAMPLE DATE:				02/14/84			05/07/84			08/08/84			11/06/84	
AIR TEMP :				1.000			10.000			19.000				
FLOW RATE :														
WATER LEVEL:														
PHYSICAL PROPERTIES														
SAMP-TMP	FIELD	DEG. C		1.000			5.000			7.500			-1.000	
COND.	FIELD	UMHO/CM		148.000			138.000			120.000			149.000	
PH	FIELD	PH		7.800			8.810			8.050			7.750	
PH	LAB	PH		7.800			7.600			7.700			7.800	
ALKALIN.	TOTAL	MG/L		54.000			54.000			60.000			48.000	
HARDNESS	TOTAL	MG/L		65.300			66.600			86.200			88.300	
SOLIDS	SUSP	MG/L		-1.000			9.000			2.000			7.000	
TURBID.	FIELD	NTU		1.000			2.800			2.100			1.700	
CATIONS														
CALCIUM	TOTAL	MG/L								15.700				
MAGNES.	TOTAL	MG/L		2.600			2.600			2.650			3.400	
SODIUM	TOTAL	MG/L								4.250				
POTASS.	TOTAL	MG/L								0.510				
ANIONS														
CHLORIDE,		MG/L								1.080				
SULFATE ,		MG/L		17.000			8.000			4.900			15.000	
PRIMARY														
ARSENIC	TOTAL	UG/L								-5.000				
CADMIUM	TOTAL	UG/L								-5.000				
CHROMIUM	T-TOT	UG/L								-50.000				
LEAD	TOTAL	UG/L					-50.000						-50.000	

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CUMULATIVE MONTHLY REPORT

STATION NAME: THOMPSON CR BELOW BUCKSKIN CR TYPE: STREAM +C3

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MERCURY ,TOTAL ,UG/L								-0.500				
SELENIUM,TOTAL ,UG/L								-5.000				
SECONDARY												
COPPER ,TOTAL ,UG/L					-10.000						10.000	
ZINC ,TOTAL ,UG/L					22.000						8.000	
IRON ,TOTAL ,UG/L					240.000						120.000	
MANGAN. ,TOTAL ,UG/L					10.000						10.000	
TRACE METALS												
MOLY. ,TOTAL ,UG/L					-50.000						-50.000	
NUTRIENTS												
NITROGEN,NITRAT,MG/L		-0.100			-0.100						-0.100	
PHOSPHAT,T-TOT ,MG/L		0.080			0.130						-0.050	
ORGANICS												
CYANIDE ,TOTAL ,MG/L								-0.005				

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CUMULATIVE MONTHLY REPORT

STATION NAME: THOMPSON CR ABOVE BUCKSKIN CR TYPE: STREAM TC4

				JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
SAMPLE DATE:					02/14/84			05/07/84			08/08/84			11/06/84	
AIR TEMP :					-0.500			11.000			17.000				
FLOW RATE :															
WATER LEVEL:															
PHYSICAL PROPERTIES															
SAMP-TMP	FIELD	DEG. C			0.500			5.000			7.000			-1.000	
COND.	FIELD	UMHO/CM			122.000			113.000			107.000			119.000	
PH	FIELD	PH			7.700			8.600			7.910			7.550	
PH	LAB	PH			7.700			7.500			7.600			7.400	
ALKALIN.	TOTAL	MG/L			46.000			44.000			46.000			32.000	
HARDNESS	TOTAL	MG/L			88.300			70.600			78.400			69.900	
SOLIDS	SUSP	MG/L			-1.000			13.000			-1.000			9.000	
TURBID.	FIELD	NTU			1.100			3.100			1.900			2.600	
CATIONS															
CALCIUM	TOTAL	MG/L									14.100				
MAGNES.	TOTAL	MG/L			2.300			3.500			2.150			2.900	
SODIUM	TOTAL	MG/L									3.900				
POTASS.	TOTAL	MG/L									0.440				
ANIONS															
CHLORIDE,		MG/L									1.620				
SULFATE ,		MG/L			12.000			12.000			7.400			11.000	
PRIMARY															
ARSENIC	TOTAL	UG/L									-5.000				
CADMIUM	TOTAL	UG/L									-5.000				
CHROMIUM	T-TOT	UG/L									-50.000				
LEAD	TOTAL	UG/L						-50.000						-50.000	

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SAMPLING DATA FOR 1984
CUMULATIVE MONTHLY REPORT

STATION NAME: THOMPSON CR ABOVE BUCKSKIN CR TYPE: STREAM TC4

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MERCURY ,TOTAL ,UG/L								0.800				
SELENIUM,TOTAL ,UG/L								-5.000				
SECONDARY												
COPPER ,TOTAL ,UG/L					-10.000						10.000	
ZINC ,TOTAL ,UG/L					19.000						3.000	
IRON ,TOTAL ,UG/L					220.000						340.000	
MANGAN. ,TOTAL ,UG/L					-10.000						10.000	
TRACE METALS												
MOLY. ,TOTAL ,UG/L					-50.000						-50.000	
NUTRIENTS												
NITROGEN,NITRAT,MG/L		-0.100			-0.100						-0.100	
PHOSPHAT,T-TOT ,MG/L		-0.050			-0.050						-0.050	
ORGANICS												
CYANIDE ,TOTAL ,MG/L								-0.005				

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2) ALL RESULTS ARE TOTALS UNLESS OTHERWISE INDICATED
3) A NEGATIVE VALUE DENOTES LESS THAN THE VALUE INDICATED